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F4H H2A H2C H2H
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(56) Documents Cited

GB 2354286 A GB 2333095 A WO 97/12186 A1
US 4024729 A

(58) Field of Search

UK CL (Edition S) E2X X7 , F4H H2A H3
INT CL⁷ A47G 29/14 29/28 , F25D 19/00 23/10
ONLINE DATABASES: WPI EPODOC JAPIO

(54) Abstract Title

Refrigerator for the receipt of home deliveries

(57) A refrigerator for the receipt of home deliveries, particularly of perishable food items, comprises a thermally insulated, free standing cabinet (1); a compressor, coolant circuit and electric motor (16) mounted in weatherproof manner within a compartment; and means to anchor the refrigerator in its required location. The refrigerator includes at least one hinged watertight door (8) providing access to the interior of the cabinet. The door includes means, preferably in the form of a swipe card to prevent unauthorised openings of the doors. As shown, the cabinet may be mounted on a pedestal (12) having a foot secured to the ground by studs. Alternatively, the cabinet could be wall-mounted.

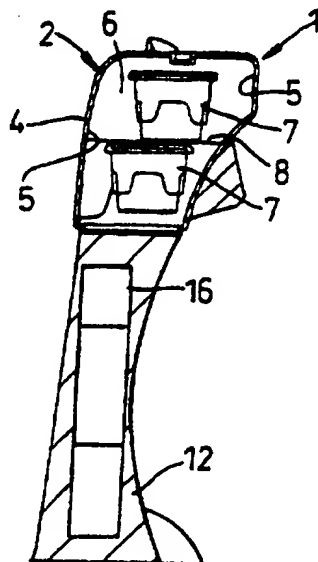


Fig. 5

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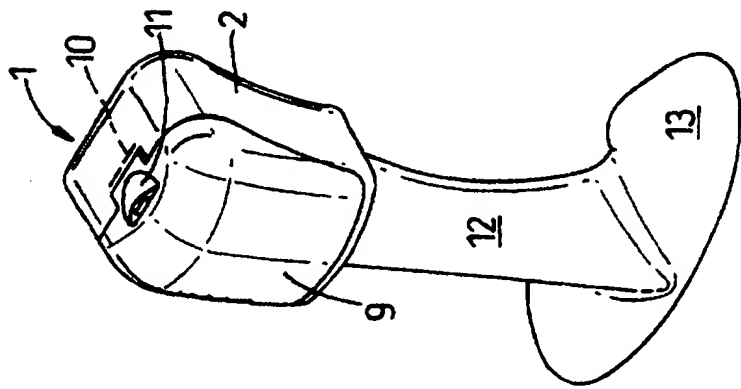


Fig. 1

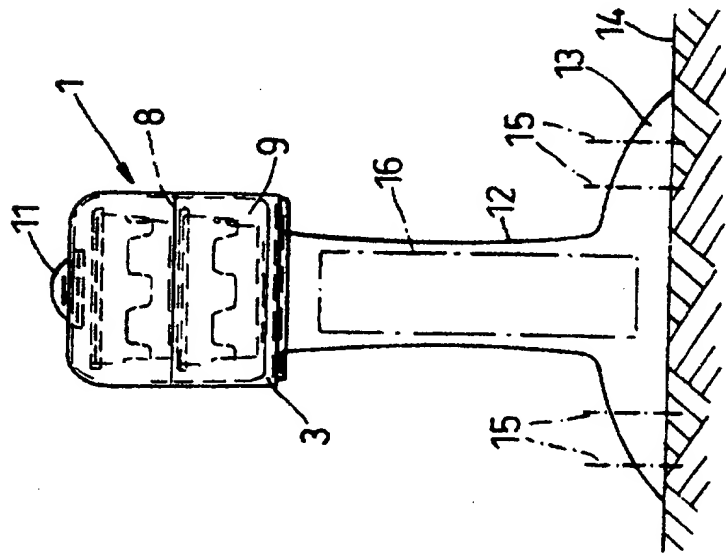


Fig. 2

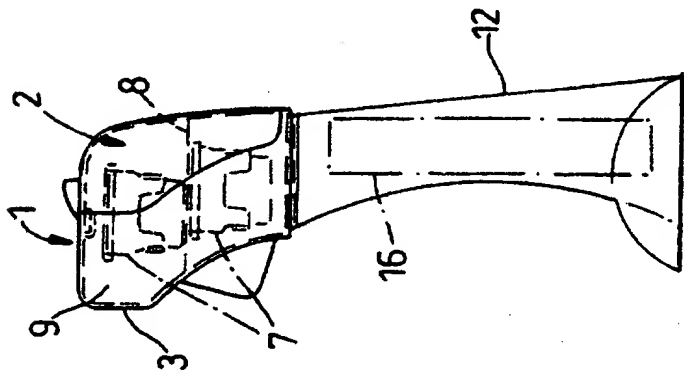


Fig. 3

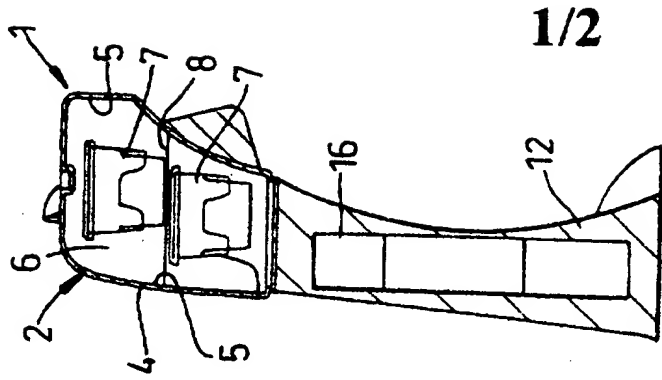


Fig. 5

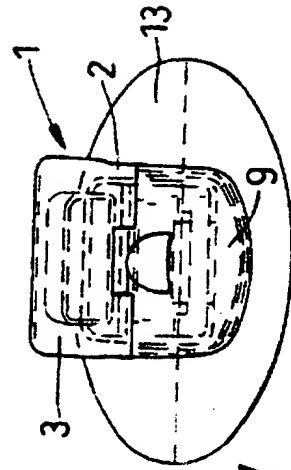


Fig. 4

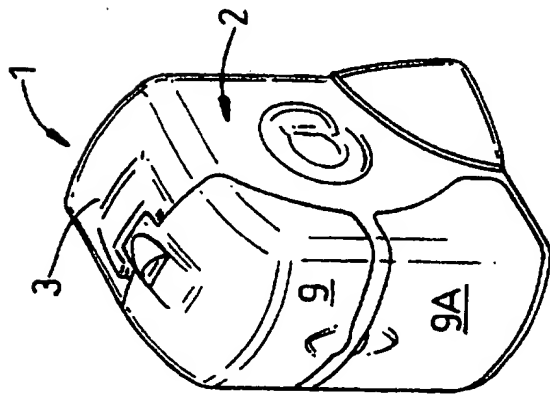


Fig. 6

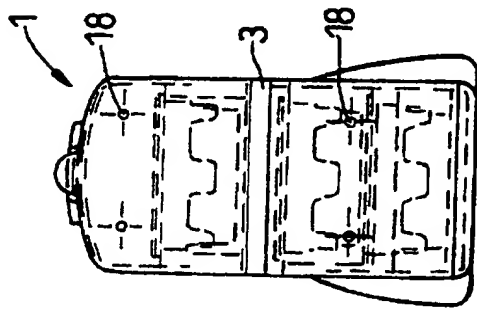


Fig. 7

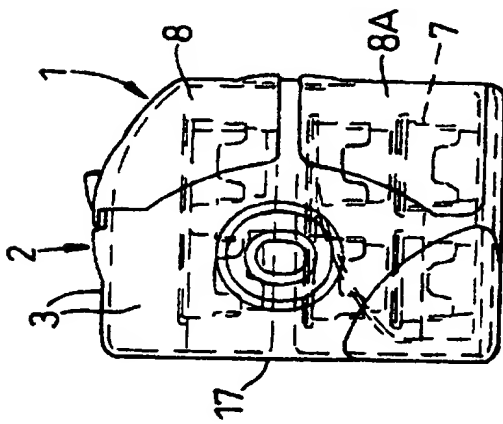


Fig. 8

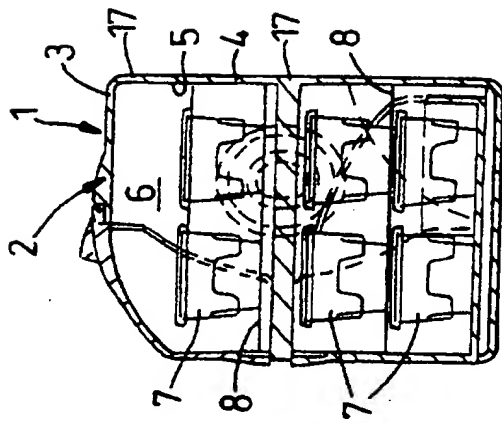


Fig. 10

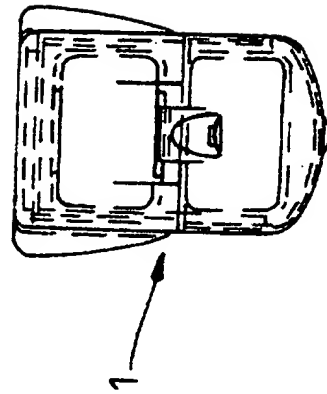


Fig. 9

Title of the Invention

Refrigerator

Field of the Invention

5 This invention relates to a refrigerator for the secure storage of perishable products.

Background of the Invention

10 The increasing tendency for home delivery by supermarkets or by internet shopping of perishable products results, ideally requires the householder to be at home at the time of delivery, to ensure minimal deterioration of the condition of perishable products. However, many householders are absent for some or all of the day, principally due to work, or leisure activities.

15 One solution is suggested in WO 97/12186 for a refrigerator to be built into a house wall, the refrigerator having both an external and an internal door, ensuring that delivery is to a chilled container, irrespective of whether or not the householder is at home. This solution requires considerable investment/installation costs, and not all householders have sufficiently available free wall space, whether in house or garage, to accommodate an in-built refrigerator.

Object of the Invention

20 A basic object of the invention is the provision of a specifically designed refrigerator suitable for the receipt of home deliveries, particularly of perishable food items, being secure and waterproof and adaptable to receive standard supermarket delivery boxes.

Summary of the Invention

According to the present invention, there is provided a refrigerator for the receipt of home

deliveries, particularly of perishable food items, comprising:

- (i) a thermally insulated, free standing cabinet;
- (ii) a compressor, coolant circuit and electric moto mounted in weathertight manner with a compartment;
- 5 (iii) means to anchor the refrigerator in its required location;
- (iv) at least one weatherproof and watertight door providing access to the interior of the insulated cabinet, hinged to the cabinet, and
- (v) means to prevent unauthorised opening of the door(s).

10 **Advantages of the Invention**

Thus, the invention provides a free-standing refrigerator suitable for the outdoor location, that avoids the installation cost of in-built, prior art proposals, that can be anchored in a selected location to deter theft of the entire refrigerator, and that is available 24 hours a day for the deposit of perishable food, flowers, etc.

15 Although the refrigerator is for outdoor use, it is also suitable for location in an existent porch or recess.

Preferred or Optional Features

The cabinet has a single door.

20 The cabinet has multiple doors, such as an upper door and a lower door, for larger capacity cabinets.

The cabinet is carried by the upper end of a free standing pedestal.

The pedestal is anchored to the ground by anchor means.

The anchor means is an aperture bracket or foot, with a ground anchor, stud, or bolt

adapted to be passed through the aperture and secured, eg in concrete.

The cabinet is anchored by wall anchors to a brick or concrete wall of a house, garage, porch etc.

The wall anchors are screws, studs etc in the brick or concrete wall.

5 The means to prevent unauthorised opening is a key-pad operated latch.

The means to prevent unauthorised opening is a "swipe" card controlled latch.

The cabinet is of sheet metal or synthetic plastics.

The cabinet is lined with thermal insulation sheet or blocks, and finished internally, with a plastics liner providing, if required, support ribs for shelving.

10 Weatherproofing is conveniently effected by the strategic location on the cabinet and/or door of sealing or other protective strips of a synthetic rubber or plastics, with the or each door being a front or side door hinged to the cabinet about a horizontal or vertical axis, with the hinge means of non-rusting synthetic plastics material, such as a nylon or polyurethane hinge pin. If of metal, the hinge components require lubricant sealing.

15 Two embodiments of refrigerator are shown by way of examples, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a first embodiment of refrigerator in accordance with the invention;

Figure 2 is a front elevation of Figure 1;

20 Figure 3 is a side elevation of Figure 1;

Figure 4 is a plan view of Figure 1;

Figure 5 is a section on the line A-A of Figure 2;

Figure 6 corresponds to Figure 1 but shows a second, larger capacity embodiment;

Figure 7 is a front elevation of Figure 6;

Figure 8 is a side elevation of Figure 6;

Figure 9 is a plan view of Figure 6;

Figure 10 is a section on the line B-B of Figure 7.

In both embodiments, like components are accorded like reference numerals.

5 A refrigerator comprises a thermally insulated, free standing cabinet 1, which comprises a moulded casing 2 of synthetic plastics material, having an outer, weatherproof skin 3, a layer of thermal insulation 4, and an inner lining 5 defining a hollow interior 6 adapted to receive a plurality of containers 7. The embodiment of Figures 1 - 5 can be seen to house two containers 7. The embodiment of Figures 6 - 11 can be seen to house six containers 7.

10 Whilst, for the housing of multiple containers, the latter may be stacked one on top of the other, preferably at least one horizontal shelf 8 is provided.

In the embodiment of Figures 1 - 5, a single access door 9 is provided, again of synthetic plastics material secured to the cabinet 1 by a horizontal, weatherproof hinge 10.

Means to prevent unauthorised opening of the door 9, and hence access to the interior 6, is a unit 11 adapted to receive a swipe card, and controlling a latching device.

The door 9 makes a weatherproof, and in particular a waterproof seal with the cabinet 1, by having a deformable elastomeric seal eg of rubber, extending around its periphery.

In Figures 1 - 5, the cabinet 1 is shown mounted, securely, on the upper end of a pedestal 12 having a foot 13 secured to the ground 14 by a plurality of studs on axes 15.

20 Supply of coolant gas to the cabinet 1 is from a compressor and electric motor module 16 housed within the pedestal 12. Clearly, a source of mains electricity (not shown) is required for the module 16. Not shown, for clarity, is coolant piping between the module 16 and the cabinet 1.

The embodiment of Figures 6 - 10 is for larger capacity requirements, and is provided not

only with an upper door 9, in accordance with the first embodiment, but also with a lower door 9A, to provide access to the lower area of the interior 6, while two horizontal shelves 8 are provided.

The embodiment of Figures 6 -10 could also be pedestal mounted.

5 Alternatively, the embodiment of Figures 6 -11, having a flat rear wall 17, could be wall mounted, preferably by internally located bolts or wall studs on axes 18, which are fixed before installation of the thermal insulation.

CLAIMS

1. A refrigerator for the receipt of home deliveries, particularly of perishable food items, comprising:

- 5 (i) a thermally insulated, free standing cabinet;
- (ii) a compressor, coolant circuit and electric motor mounted in weathertight manner with a compartment;
- (iii) means to anchor the refrigerator in its required location;
- 10 (iv) at least one weatherproof and watertight door providing access to the interior of the insulated cabinet, hinged to the cabinet, and
- (v) means to prevent unauthorised opening of the door(s).

2. A refrigerator as claimed in Claim 1, wherein the cabinet has a single door.

- 15 3. A refrigerator as claimed in Claim 1, wherein the cabinet has multiple doors, such as an upper door and a lower door, for larger capacity cabinets.

4. A refrigerator as claimed in any preceding claim, wherein the cabinet is carried by the upper end of a free standing pedestal.

- 20 5. A refrigerator as claimed in Claim 4, wherein the pedestal is anchored to the ground by anchor means.

6. A refrigerator as claimed in Claim 5, wherein the anchor means is an aperture bracket or foot, with a ground anchor, stud, or bolt adapted to be passed through the aperture and secured, eg in concrete.

- 5 7. A refrigerator as claimed in any one of Claims 1 - 3, wherein the cabinet is anchored by wall anchors to a brick or concrete wall of a house, garage, porch etc.

8. A refrigerator as claimed in Claim 7, wherein the wall anchors are screws, studs etc in the brick or concrete wall.

10

9. A refrigerator as claimed in any preceding claim, wherein the means to prevent unauthorised opening is a key-pad operated latch.

15

10. A refrigerator as claimed in any one of Claims 1 - 8, wherein the means to prevent unauthorised opening is a "swipe" card controlled latch.

11. A refrigerator as claimed in any preceding claim, wherein the cabinet is of sheet metal or synthetic plastics.

20

12. A refrigerator as claimed in any one of Claims 1 - 10, wherein the cabinet is of synthetic plastics.

13. A refrigerator as claimed in any preceding claim, wherein the cabinet is lined with thermal insulation sheet or blocks, and finished internally, with a plastics liner.

14. A refrigerator as claimed in Claim 13, wherein the liner provides support ribs for shelving.

5 15. A refrigerator as claimed in any preceding claim, wherein sealing or other protective strips of a synthetic rubber or plastics are provided on the cabinet and/or door.

10 16. A refrigerator as claimed in any preceding claim, wherein the or each door is a front or side door hinged to the cabinet about a horizontal or vertical axis, with the hinge means of non-rusting synthetic plastics material, such as a nylon or polyurethane hinge pin.

17. A refrigerator substantially as herein before described with reference to the accompanying drawings 1 - 5.

15 18. A refrigerator substantially as herein before described with reference to the accompanying drawings 6 - 10.



INVESTOR IN PEOPLE

Application No: GB 0026785.6
 Claims searched: All

Examiner: M C Monk
 Date of search: 21 June 2001

Patents Act 1977

Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
 UK CI (Ed.S): E2X (X7); F4H (H2A, H3)
 Int CI (Ed.7): A47G (29/14, 29/28); F25D (19/00, 23/10)
 Other: ONLINE DATABASES: WPI EPODOC JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	GB 2354286 A	ANDREW LASLETT GILLARD Example of a securely locked receptacle extending through a wall and operated by a swipe card.	
X	GB 2333095 A	DAVID STUART ARCHBOLD Consider whole document; see para 4 p.2 - container free standing, secured to a base or wall-mounted via brackets; para 2 p.3 - securing means can be a magnetic coded card; see para 3 p.4 - container includes electrically-powered cooling means; see para 4 p.5/para 1 p.6 - chilled foodstuffs kept separate in different compartments at different temperatures.	1,2,4-10, at least
X	WO 97/12186 A1	De MARSILLAC PLUNKETT ARCHITECTURE Consider whole document; security dead locks (10,11); refrigeration components (3); doors (4,5); wall mounting elements (6,7).	1-3,7 at least
X	US 4024729	ABATE & SPECTOR Consider whole document; automatic lock; hinged door; wall-mounted; see especially Fig. 1.	1-3,7 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.